Issued January 16, 1917.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF SOILS—MILTON WHITNEY, Chief.

SOIL SURVEY OF DORCHESTER COUNTY, SOUTH CAROLINA.

BY

W. J. LATIMER, IN CHARGE, J. M. SNYDER, AND CORNELIUS VAN DUYNE.

W. EDWARD HEARN, INSPECTOR, SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1915.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1917.

BUREAU OF SOILS.

MILTON WHITNEY, *Chief of Bureau.*
ALBERT G. RICE, *Chief Clerk.*

SOIL SURVEY.

CURTIS F. MARBUT, *In Charge.*
G. W. BAUMANN, *Executive Assistant.*

COMMITTEE ON THE CORRELATION AND CLASSIFICATION OF SOILS.

CURTIS F. MARBUT, *Chairman.*
HUGH H. BENNETT, Inspector, Southern Division.
W. EDWARD HEARN, Inspector, Southern Division.
THOMAS D. RICE, Inspector, Northern Division.
W. E. MCLENDON, Inspector, Northern Division.
MACY H. LAPHAM, Inspector, Western Division.
J. W. MCKERICHER, *Secretary.*

Issued January 16, 1917.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF SOILS—MILTON WHITNEY, Chief.

SOIL SURVEY OF DORCHESTER COUNTY, SOUTH CAROLINA.

BY

W. J. LATIMER, IN CHARGE, J. M. SNYDER, AND CORNELIUS VAN DUYNE.

W. EDWARD HEARN, INSPECTOR, SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1915.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1917.

LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
Washington, D. C., April 20, 1916.

SIR: One of the projects undertaken by the bureau and completed during the field season of 1915 was a soil survey of Dorchester County, S. C.

I have the honor to transmit herewith the manuscript report and map covering this work and to recommend their publication as advance sheets of Field Operations of the Bureau of Soils for 1915, as provided by law.

Respectfully,

MILTON WHITNEY,
Chief of Bureau.

Hon. D. F. HOUSTON,
Secretary of Agriculture.

CONTENTS.

ILLUSTRATIONS.

PLATES.

FIGURE.

MAP.

Soil map, Dorchester County sheet, South Carolina.

SOIL SURVEY OF DORCHESTER COUNTY, SOUTH CAROLINA.

By W. J. LATIMER, In Charge, J. M. SNYDER, and CORNELIUS VAN DUYNE—Area inspected by W. EDWARD HEARN.

DESCRIPTION OF THE AREA.

Dorchester County is situated in the southeastern part of South Carolina, being one of the second tier of counties from the Atlantic coast. It is irregular in shape, being about 45 miles long and varying in width from 8 to 18 miles. It is bounded on the northeast by Berkeley County, on the southwest by Charleston County, on the southwest by Colleton County, and on the northwest by Orangeburg County. Its southern boundary is about 12 miles from Charleston. The county embraces an area of 566 square miles, or 362,240 acres.

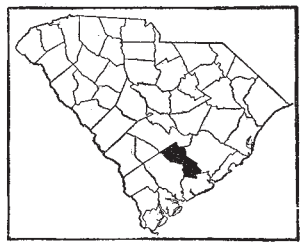


FIG. 1.— Sketch map showing location of the Dorchester County area, South Carolina.

Dorchester County lies wholly within the flatwoods section of the Coastal Plain, or in what is known in South Carolina as "the Lower Pine Belt." The surface of the county is predominantly level to gently rolling. There are, however, three general divisions differing somewhat in topography; the low savannas in the southern part, the flat savannas in the central and eastern parts, and the rolling country in the northern part. In the southern fourth of the county, or that part lying south of the Ashley River and the Wire Road and south of Beech Hill, there are extensive areas of low savanna land lying little above the level of the Tidal marsh, into which they merge on the south. This land, locally known as "Old Tidal Flats" or "Low Savannas," is studded frequently with "islands" ranging from 5 to 25 feet higher than the surrounding country. The central portion, or that part lying to the north of the above-mentioned line and extending to a line a short distance north of Four Hole Swamp, is characterized by broad expanses of flat, level areas which lie at an elevation

noticeably higher than the savanna land. This division is separated from the low savanna by an escarpment or gradual rise. The northern half of the county, or the greater part of that portion lying between the Edisto River and Four Hole Swamp, possesses undulating to gently rolling surface features throughout and lies at a considerably higher elevation than the central and southern parts of the county. The streams have cut deeper channels below the general level of the upland in this northern part than in the other parts of the county, and there occur extensive areas of flat first-bottom or swamp land, some of which are continuous across the southern part of the county. Along the Edisto River are broad second bottoms or terraces, attaining a width in some places, particularly near Grover, of three miles or more. The uplands in the northern portion of the county are marked by distinct escarpments separating them from the second bottoms, terraces, and swamp areas. Near the main streams the country is more rolling than farther away, as the small streams have cut deeper into the uplands here than in any other part of the county. In places they have encroached upon the upland until comparatively little level land is left. In general the broad interstream areas have an undulating to gently rolling topography.

The general elevation of the upland ranges from 50 to 150 feet above sea level. The average slope is only about 2½ feet a mile, and the streams are therefore sluggish. They are further retarded in their flow by the luxuriant growth of vegetation in the channels, along the banks, and upon the overflow land. Water stands upon the lower land for long periods.

Drainage is imperfectly developed. The Edisto River and its tributaries, of which Four Hole Swamp is the largest, drain four-fifths of the county. The southeastern part of the county is drained by Cypress Swamp and Dorchester Creek and other tributaries of the Ashley River. A small section of the southern part, which embraces the greater part of the old tidal estuary deposits and rice fields, is drained by Rantowles Creek. These old rice fields were ditched and diked at one time, but the dikes have been broken and the canals have filled with earth.

The territory included in Dorchester County is one of the oldest settled sections of South Carolina. The lowlands along the Ashley River and Rantowles Creek were settled first, being occupied by rice planters. Dorchester, on the Ashley River, was settled in 1696, and was a flourishing town before the Revolutionary War. Summerville was settled about 1785 by rice planters, who established summer homes there. Settlement of the interior country progressed slowly.

Nearly all the first settlers were English, a few Germans and French Huguenots coming later. Dorchester County was organized

in 1897 from parts of Colleton and Berkeley Counties. The present population consists largely of descendants of the original settlers. The population of the county at the time of the 1910 census was 17,891, of which 10,982 were negroes. The entire population is classed as rural and the density of settlement is 29.2 persons to the square mile.

Ninety per cent of the population is found north of a line drawn roughly through Stallsville and Givhans. In the section south of this line, comprising about one-fourth the area of the county, the population is composed mainly of negroes. The swampy condition of the country is responsible for the sparse settlement of this part of Dorchester County.

Summerville, a well-known winter resort on the Southern Railway, 22 miles from Charleston, is the largest town in the county, with a population of 2,355. Saint George, the county seat and second largest town, with a population of 957, is located on the Southern Railway, in the northwestern part of the county, and is the center of a prosperous farming section. Ridgeville, Reevesville, and Harleyville are smaller towns of local importance.

The county has good transportation facilities. The main line of the Southern Railway traverses it for a distance of about 36 miles, connecting at Pregnall with a branch of the Atlantic Coast Line, while the main line of the Atlantic Coast Line runs a few miles south of the southern boundary. The Ashley River and Rantowles Creek furnish means of transportation for farmers in the southern part of the county. The public-road system is fair.

Lumber, phosphate, cotton, cattle, and truck are the principal exports of the county, while food supplies, machinery, and fertilizer are the chief imports. Charleston is the principal market for the products of the county.

CLIMATE.

The climate of Dorchester County is characterized by long, hot summers and mild, open winters having only a trace of snow. The annual mean temperature is 64° F. The mean temperature for the winter months is 47.9°, and the lowest recorded temperature is zero, although this extreme is of rare occurrence. The mean temperature for the summer months is 78.6°, and the absolute maximum is 101°.

The average date of the last killing frost in the spring is March 20, and that of the first in the fall, November 17, which gives a long active growing season. The earliest recorded date of a killing frost in the fall is November 1, and of the last in spring April 17.

The mean annual precipitation is 52.62 inches, of which 20.4 inches falls during the months of June, July, and August, when most beneficial to crops. The total rainfall for the driest year of which there is any record is 44.6 inches, which is ample for the needs of growing crops.

The prevailing winds are southwest from April to August, inclusive, and variable during the remainder of the year, though generally northeast during the autumn.

The following table gives the normal monthly, seasonal, and annual temperature and precipitation as recorded by the Weather Bureau station at Summerville:

Normal monthly, seasonal, and annual temperature and precipitation at Summerville.

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.
	°F.	°F.	°F.	Inches.	Inches.	Inches.
December	48.4	80	16	3.75	2.36	3.80
January	47.7	80	14	3.35	2.93	4.57
February	47.5	80	0	4.38	3.41	3.00
Winter	47.9	80	0	11.48	8.70	11.37
March	59.3	89	22	3.11	3.00	3.73
April	62.5	92	28	3.73	4.50	1.55
May	71.8	98	40	3.59	4.93	2.37
Spring	64.5	98	22	10.43	12.43	7.65
June	76.8	99	53	5.75	7.64	8.96
July	79.8	101	58	6.37	5.15	13.27
August	79.1	96	63	8.28	7.78	6.26
Summer	78.6	101	53	20.40	20.57	28.49
September	75.0	95	48	3.92	.91	4.78
October	64.5	88	30	3.76	1.03	6.24
November	55.7	85	17	2.63	.96	.70
Fall	65.1	95	17	10.31	2.90	11.72
Year	64.0	101	0	52.62	44.60	59.23

AGRICULTURE.

Rice was introduced into South Carolina in 1694 from Madagascar. It was well suited to the low country contiguous to the tidal flats, and its culture spread very rapidly during the first decade of the eighteenth century. Its introduction into Dorchester County came during this period. Rice was so well suited to this section that it

soon became the leading crop, and its production continued to increase until the outbreak of the Civil War, when it was seriously curtailed. After the war, owing to labor conditions, the upkeep of dams, canals, and ditches, so necessary in the cultivation of rice, could not be continued, and rice growing gradually decreased in importance. Many of the old rice fields are covered with a growth of trees of such size as to indicate that the land was abandoned about the time of the Civil War. Other factors influencing the decline of rice culture in Dorchester County were the growing of rice in Louisiana and Arkansas and the injury caused by the rice weevil.

In 1899 only 2,612 acres were in rice, and by 1909 this had decreased to 218 acres. The production in the latter year was 2,355 bushels. There are no data from which to compute the acreage planted in former years, but, judging from the extent of the old rice fields, it must have been very large.

Cotton was introduced about 1750, but was not grown very extensively until after the Civil War. At first it was planted by the rice growers upon the pine barrens and grown in conjunction with rice. As the production of rice decreased that of cotton increased, and by 1880 the latter had become the leading crop of the county. Such crops as corn, oats, and sweet potatoes have been grown since the early settlement of the county.

At present cotton is the chief money crop, as well as the principal crop from the standpoint of production. According to the census cotton was grown on 23,334 acres in 1909, producing 12,936 bales, or approximately one-half bale per acre. The entire crop, including both lint and seed, is sold.

As cotton requires a well-drained soil, it is grown entirely on the uplands. Most of the land is sandy and therefore is not turned before preparing the seed bed, the common practice being to make the beds over the water furrows of the preceding year. The best practice, however, is to break the land broadcast in the first period of favorable weather in the spring, laying it off with a 1-horse plow in rows 3½ or 4 feet apart. The land is then turned to the marking row, leaving a trench, for which purpose a bull-tongue plow is used. From 400 to 1,000 pounds per acre of fertilizer analyzing 8–3–3 is then placed in the trenches. After the fertilizer has been mixed by running a bull-tongue plow along the furrows the soil is thrown into the trenches, forming a high bed, in which the seed is planted with a drill or seed planter. The ridge method is used to insure rapid and thorough germination. When the plants are about 2 to 4 inches high they are thinned out by chopping with a hoe, leaving the plants about 10 to 12 inches apart in a row. The first cultivations are usually deep, while those following, which are as frequent as needed

to keep down grass, are shallow and are made with a sweep. One-horse implements are used in cultivating the crop.

The long growing season favors the big-boll varieties of cotton. Cleveland Big Boll, Cook, Peterkin, and King are the principal varieties planted. Some seed is saved by the growers, but a considerable quantity is obtained from the cottonseed buyers, in the latter case little attention being paid to variety.

Corn, the second crop in importance, was grown on 20,194 acres in 1909, with a production of 298,707 bushels, giving an average yield of 14.8 bushels per acre. Very little of the corn is sold.

In cultivating corn the Williamson plan,[1] sometimes modified to suit local conditions, is used by many farmers. Variations of this method are based largely upon the kind and quantity of fertilizer used before planting, the preparation of the land, and the degree of stunting. In some cases cottonseed meal is used on corn as a source of nitrogen and in others nitrate of soda. Where the old methods of growing corn are followed upon sandy land and no fertilizer is used the yields are extremely low, and even where fertilizer is used they are comparatively low.

Dent corn is grown exclusively, although little attention is given to the selection of varieties. The Marlboro Prolific and McGregor varieties are grown by the State experiment station and by some of the farmers. Corn is usually topped and fodder is stripped from the stalks. A small acreage is grown for forage and ensilage.

In 1909 there were 2,438 acres in oats, and the total production was 49,547 bushels, or an average of 20.3 bushels per acre. Oats are sown broadcast or drilled. Most of the crop is harvested with the reaper. The usual fertilizer application for oats consists of about 250 pounds per acre of phosphoric acid, with about 75 to 150 pounds of nitrate of soda as a top dressing. Texas Red Rustproof is the most extensively grown variety, although the Appler seems to give the best results.

The 1910 census reports 2,705 acres in cowpeas, from which only 7,461 bushels of seed was gathered, the greater part of the crop being cut for hay. The total acreage of hay and forage crops was 1,317, and the production, 1,003 tons. This includes 109 acres of tame and cultivated grasses, 1,167 acres of grains cut green, and 41 acres of coarse forage. Most of the feed for stock is produced at home.

Sugar cane was grown on 230 acres in 1909, producing 2,192 tons of cane. Most of this is made into sirup. Sorghum, wheat, rye, vetch, soy beans, peanuts, and tobacco are grown to a small extent.

In 1909 sweet potatoes were grown on 622 acres, producing 63,893 bushels, or 102.75 bushels per acre. Sweet potatoes are usually

[1] See Bul. 124, S. C. Expt. Sta.

planted in small patches not exceeding one-fourth acre. They are grown mainly for home consumption, only a small quantity being sold in the local markets. A few farmers pasture hogs in the potato fields.

Irish potatoes are grown to a small extent, 109 acres being planted in 1909, from which 13,326 bushels, or an average of 122.25 bushels per acre, were obtained. They are usually grown in gardens for home consumption.

Cabbage, onions, lettuce, turnips, tomatoes, peppers, carrots, beets, spinach, beans, peas, radishes, cucumbers, okra, and kale are grown on nearly all the farms for home use. Only a few growers produce vegetables on a commercial scale.

Watermelons and cantaloupes are grown for local use and for shipping, being the only truck crops grown for outside markets. Strawberries are grown to a small extent for the home and for local markets. Blackberries grow wild and are gathered for home use and local markets.

Experiments in the production of tea have been conducted in the vicinity of Summerville for a number of years under the direction of the United States Department of Agriculture, and the only farm in the United States producing tea on a commercial scale is located there.[1] The varieties experimented with were brought from the best gardens of China, Japan, India, and Ceylon. At the present time there are about 100 acres in tea. The lower lying areas or depressions, where thoroughly underdrained and limed, are considered best for the crop, although most of it is planted on high, well-aerated land. When planted on the higher land it is heavily fertilized. A large, thoroughly equipped plant for curing the tea is located upon the farm at Summerville. The labor problem has been solved by maintaining schools for colored children, who pick the crop in return for an education. The growing of tea requires a large outlay for land, drainage, and machinery.

Peaches are grown much more extensively than any other orchard fruit, 5,131 trees being reported by the 1910 census. Only 1,089 apple trees are reported, largely summer varieties. The total number of orchard trees in 1910 was 8,612, from which 4,468 bushels of fruit were obtained. Grapes, mainly Scuppernong, are grown to some extent. Only 127 nut trees were reported in 1910, of which 119 were pecan. The planting of pecan groves is increasing.

The section south of a fence line extending across the county in a general east and west direction from a point one-half mile north of Jedburg to a point near Givhans Bridge is constituted by mutual agreement an open range for cattle. North of this line the stock

[1] See Bul. 301, U. S. Dept. of Agr., on Home-Grown Tea.

law is in effect, and stock must be fenced in. A considerable number of cattle, hogs, and goats graze upon the open range. The cattle and hogs are corralled as needed and fattened, some of them being sold at Charleston. In 1909 there were 418 calves, 1,358 other cattle, 6,565 hogs, and 90 sheep and goats sold or slaughtered in the county. The meat produced is not sufficient to supply the local demand, and large quantities are imported.

Some attention has been paid to improving the live stock. Purebred Berkshire, Poland China, Ohio Improved Chester, and Duroc Jersey hogs have been introduced. These are mixed to some extent with common stock or "razorbacks." Purebred Jersey bulls are kept by the dairymen, and marked improvement has been made in the standard of dairy herds during the last few years.

There are three well-equipped dairies in the county, two of which produce milk for local markets, the third, which has about 100 cows, shipping cream to outside points. The cows of two of these dairies are grazed upon the open range.

No special or systematic form of rotation is in general use in the county. Owing to the large acreage in cotton and corn, as compared with other crops, it is difficult to arrange a satisfactory rotation. A few farmers follow cotton with corn in the spring and sow oats in the fall, following with cowpeas. After cutting a crop of hay the land is returned to cotton. Cowpeas are sometimes planted in corn at the last working. Some farmers alternate cotton and corn, while many let the land rest every seventh year.

Improved labor-saving machinery is used on only a few of the best equipped farms. The work stock consists largely of mules.

Commercial fertilizers are used to a considerable extent, but not as extensively as in most other cotton-growing sections of the State. In 1909, 84 per cent of the farms of Dorchester County reported the use of fertilizers, with a total expenditure of $157,323. Most of the fertilizer used is bought ready mixed and consists of 8–2–2, 8–3–3, and 8–4–4 grades.[1] Home-mixed fertilizers, consisting of acid phosphate, cottonseed meal, and kainit, are used to a small extent. Nitrate of soda is sometimes used as a side and top dressing. Very often one formula of fertilizer is used for all crops.

Lime is used to a small extent, "agricultural lime" being the most popular form. Most of it is used on well-drained land, the usual application being 1,000 to 2,000 pounds per acre. A compost of marl and muck has been used by some of the farmers, with satisfactory results. As there are large quantities of muck in the swamps and marl beds underlie most of the county, this is an economical

[1] Fertilizer formulas are stated in the order: Phosphoric acid, nitrogen, potash.

method of building up the land. There are extensive beds of phosphate in the county which have not been worked.

The importance of the adaptation of soils to crops is generally recognized by the farmers of Dorchester County. Rice does well upon the low, poorly drained land. The savannas and pine flats are used almost exclusively for native grass. Many soils that are naturally poorly drained are well suited to oats after being artificially drained. Sweet potatoes and rye are grown on sandy soils, wheat upon the river terraces, and cotton upon well-drained uplands.

Most of the farm labor is performed by negroes. The usual daily wage is 75 cents for men and 50 cents for women and boys. The prevailing price paid for picking cotton is 40 cents per 100 pounds. More than half the farms in the county reported expenditure for labor in 1909. The total expenditure was $154,830, or an average of $129.13 per farm reporting.

The 1910 census reports 50 per cent of the total land area of the county in farms, and 33.5 per cent of this as improved. The average size of farms is 89.5 acres. There were 2,194 farms in the county in 1910, 65 per cent of which were operated by owners, 34.7 per cent by tenants, and 3 per cent by managers. Most of the land is rented for cash, the rentals ranging from $2 to $10 an acre, according to location and improvements. The average rental for land remote from towns or community centers is $3 to $3.50 an acre. Pasture land is usually leased at a low figure, rarely bringing as much as $1 an acre. Where the tenants are unable to pay cash the landowners furnish the implements, stock, seed, and fertilizer, and stand security for subsistence and maintenance. The division of crops produced under this system varies widely. The average value of farm land in 1910 was $11.04 an acre.

SOILS.

Dorchester County lies wholly within the Coastal Plain region and the soils fall into three distinct groups: (1) Upland or sedimentary soils, (2) terrace or old-alluvial soils, and (3) first-bottom or overflow (recent-alluvial) soils. The upland soils are derived from material eroded from the Piedmont Plateau and Appalachian Mountain regions, which was transported by streams and deposited upon the bed of the ocean that at one time covered this section. They comprise beds of unconsolidated sands and clays. The original formation has suffered to some extent from erosion. The larger streams have cut broad channels to base level and lateral streams have cut channels well back into the upland. Ridges of wind-blown sand occur. Organic matter has collected in the lower places and deoxidation has taken place upon the broad, poorly drained flat areas,

while the well-drained areas show various stages of oxidation and leaching.

The terrace soils consist of unconsolidated sands and clays deposited by the streams when they flowed at a higher level than at the present time. The material is derived from the Coastal Plain soils. The first bottom represents the present flood plain of the streams, and also comprises sands and clays derived from the Coastal Plain soils.

The soils to the northwest of an irregular line through Harleyville and Pregnall are prevailingly medium in texture, while to the southeast, with a few exceptions, they range from fine sandy loam to clay loam. The better drained soils and those lighter in texture occur, as a rule, along the margin or escarpment of the swamps. In some places they are found upon ridges running parallel to the shore line, the low-lying land between them representing the old lagoons.

Exclusive of Tidal marsh, 29 distinct soil types are mapped in Dorchester County. One of these is represented only by a phase, and three are unimportant types distinguished on the map with inclusion symbols. For convenience of classification the soils are grouped into series, the members of each series resembling one another in general range of color, and in structure, origin of material, method of formation, and general topographic features. The types within the series are separated on the basis of texture.

The upland soils include the Norfolk, Ruston, Coxville, Portsmouth, Bladen, and Hyde series.

The types of the Norfolk series have light-gray to yellowish-gray surface soils and yellow, friable subsoils. They occur on nearly level to rolling uplands and possess fairly good natural surface drainage. In general they are low in organic matter. The Norfolk fine sandy loam, fine sand, sand, sandy loam, and very fine sandy loam are mapped in Dorchester County.

The surface soils of the Ruston series are gray to grayish brown, and the subsoils reddish yellow to yellowish red or dull red, and moderately friable. The series holds an intermediate position between the Orangeburg and the Norfolk series in point of color of soil and subsoil and between the Orangeburg and Norfolk on the one hand and the Susquehanna and Coxville on the other in point of structure of subsoil. Occasionally the subsoils are mottled in the lower part with gray and shades of yellow. The topography is usually undulating to rolling. The fine sandy loam, sandy loam, and loamy sand are mapped in Dorchester County.

The surface soils of the Coxville series are dark gray to nearly black. The subsoils consist of yellow, moderately friable clay in the upper part and yellow, plastic, compact clay, mottled with drab and red, in the lower part. These soils are largely developed over

the flatwoods section of the Atlantic Coastal Plain. The topography is prevailingly level. The Coxville series is represented in Dorchester County by three types—the fine sandy loam, silt loam, and sandy loam, the last being represented only by a well-drained phase.

The surface soils of the Portsmouth series are dark gray to black, and usually high in organic matter, and the subsoils are light gray to mottled gray, yellow, and brown. The subsoils of the heavier members are usually plastic. These soils occur in flat to slightly depressed, poorly drained situations, and are most extensively developed in the flatwoods or lower part of the Atlantic Coastal Plain and in that part of the Gulf Coastal Plain east of the Mississippi River. Scattered areas are found in the higher Coastal Plain region. Four types of the Portsmouth series are mapped, the fine sand, fine sandy loam, sandy loam, and silt loam.

The Bladen series is characterized by a gray to brown surface soil. The subsoil consists of mottled gray, yellow, and brown, heavy, plastic material. The soils occupy low, flat depressions very near the level of Tidal marsh. They are apparently intermediate between Tidal marsh and the Coxville soils, differing from the latter in not being so well drained and in the absence of red mottling in the subsoils. The Bladen clay loam is the only type of this series mapped in Dorchester County.

The soils of the Hyde series are characterized by their black color throughout the 3-foot section. They contain a high percentage of finely divided, well-decomposed organic matter. The soils are developed in flat or slightly depressed, poorly drained situations, representing old tidal lagoons. Only one type, the Hyde clay loam, is mapped in Dorchester County.

Upon the terraces or second bottoms are developed the Kalmia, St. Lucie, Myatt, Leaf, and Okenee series.

The surface soils of the Kalmia series are gray to grayish yellow; the subsoils are yellow, sometimes mottled with gray. This series is developed along streams of the Coastal Plain region on terraces lying largely above overflow. The soils are typically developed in the Coastal Plain region of Mississippi and Alabama. They correspond to the Norfolk series of the upland. In this county the Kalmia series is represented by three types—the fine sandy loam, sand, and coarse sand. The coarse sand, as well as the St. Lucie sand, is shown by symbols in areas of the Kalmia sand.

The Myatt series includes gray to dark-gray surface soils and gray to mottled gray, yellow, and brown, usually impervious subsoils. The soils of this series represent the poorly drained parts of the Coastal Plain stream terraces. They lie principally above overflow, but are usually so flat that water stands upon them for long periods after rains. They are closely associated with the Kalmia soils.

The Myatt series is represented in this county by three types—the fine sandy loam, sand, and sandy loam. The Myatt fine sandy loam areas include developments of the Leaf silt loam, distinguished by inclusion symbol on the map.

The Okenee soils are characterized by their black color throughout the 3-foot section and by their high content of well-decomposed organic matter. The subsoil is sometimes slightly mottled with brown. These soils form the most poorly drained parts of the terraces and in their natural condition are covered by water much of the year. The Okenee loam is the only type of this series mapped in the county.

The first-bottom soils are included in the Johnston series. This series includes types having black surface soils of high organic-matter content and gray or mottled gray, yellow, and brown subsoils. It is derived largely from Coastal Plain material. The Johnston sand, clay loam, and loam are mapped in Dorchester County.

One miscellaneous type, Tidal marsh, is also shown on the map.

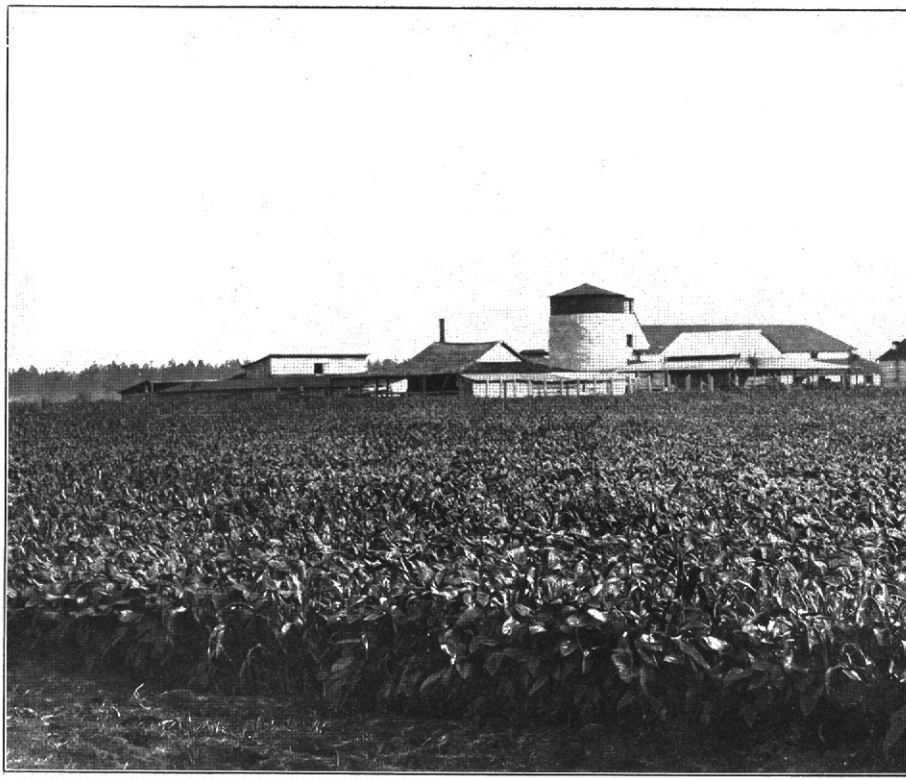
The following table gives the name and the actual and relative extent of each of the soils mapped in the county:

Area of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Johnston loam	55,616	15.4	Myatt sandy loam	10,368	2.9
Norfolk sandy loam	27,648	11.8	Hyde clay loam	8,064	2.2
Flat phase	15,040		Johnston sand	7,616	2.1
Norfolk fine sandy loam	33,920	10.7	Ruston sandy loam	5,504	1.5
Flat phase	3,456		Kalmia sand	4,224	1.2
Deep phase	1,536		Okenee loam	3,520	1.0
Bladen clay loam	26,112	7.4	Norfolk sand	3,328	.9
Better drained phase	896		Myatt fine sandy loam	2,944	.8
Portsmouth sandy loam	24,768	6.8	Myatt sand	2,048	.6
Coxville fine sandy loam	19,520	6.4	Johnston clay loam	2,048	.6
Well-drained phase	3,776		Norfolk very fine sandy loam	1,920	.5
Norfolk fine sand	8,960	6.4	Tidal marsh	1,856	.5
Loamy phase	14,080		Portsmouth silt loam	1,472	.4
Portsmouth fine sandy loam	20,608	5.7	Kalmia fine sandy loam	1,408	.4
Coxville silt loam	19,584	5.4	Ruston loamy sand	768	.2
Ruston fine sandy loam	16,704	4.6	Portsmouth fine sand	768	.2
Coxville sandy loam, well-drained phase	12,160	3.4	Total	362,240	

NORFOLK FINE SAND.

The soil of the Norfolk fine sand is a gray fine sand, 6 to 8 inches deep. This grades into a pale-yellow fine sand which extends to a depth of 3 feet or more. Both soil and subsoil are loose and open in structure and have a tendency to compact slightly when wet. The fine sand stratum usually extends to a depth of 3½ to 6 feet, but in a few instances is much deeper.



COWPEAS AND SORGHUM ON NORFOLK FINE SANDY LOAM, NEAR SUMME

TOPOGRAPHY AND GENERAL APPEARANCE OF THE COXVILLE SILT L

The Norfolk fine sand occurs in irregularly shaped areas scattered through nearly all parts of the county, being most extensively developed upon ridges and bluffs along the margin of the larger swamps. The topography is undulating to rolling and sloping, and the drainage excessive, giving rise to a leachy soil upon which crops sometimes suffer during dry seasons for lack of moisture.

In the vicinity of Dorchester areas of the Norfolk fine sand occur having a more level to undulating topography, and in which the color of the surface soil is slightly darker and that of the subsoil lighter than usual. The deep subsoil material of such areas is very often moist and slightly coherent. Very little of the soil of this variation is used for cultivated crops. Where cultivated the same crops are grown as on the typical soil, and the yields are similar. Crops upon this soil probably withstand drought better than upon the better drained areas.

Probably two-thirds of the Norfolk fine sand is cleared and under cultivation. The remainder is forested with longleaf pine and scrub oak. The principal crops grown are cotton, corn, oats, rye, sweet potatoes, and vegetables.

Cotton is probably grown upon a larger acreage than any other crop. It yields ordinarily about one-fourth to one-half bale per acre, but in favorable seasons, with heavy applications of commercial fertilizer, one bale per acre has been obtained. Fertilizer is always used with cotton on this soil.

Corn is grown upon a small acreage. Where the Williamson method, or some modification of it, is followed yields of 25 to 35 bushels per acre are obtained. Where little or no fertilizer is used, as on many of the tenant farms, only about 10 bushels per acre are obtained. Oats and rye are both grown to a small extent, the former making somewhat better returns than the latter. Unless fertilized, however, oats give very poor yields.

Nearly all the vegetables common to the central Atlantic Coastal Plain are grown upon this soil. Fertilizer, stable manure or woods earth are usually applied to gardens. Sweet and Irish potatoes are grown in small patches for home use, the former yielding at the rate of about 150 bushels per acre. Unless fertilized, sweet potatoes have a tendency to form what is known as a "shoe-string" potato. Peaches, pears, plums, and Scuppernong grapes are also grown for home use, and do well, although very little attention is given them. Blackberries and dewberries grow wild, although not so luxuriantly as upon some of the other soil types.

Cowpeas are the only leguminous crop grown. They make fairly good yields of hay. The soil is not very well suited to grasses and is very little used for pasture.

The Norfolk fine sand is not a very strong soil, but responds readily to the use of fertilizers and barnyard and green manures. Its moisture-holding capacity is increased by growing and turning under winter cover crops. The soil is easy to plow, requiring only light implements, and can be cultivated immediately after a heavy rain without injurious effects.

Farm land of this type is valued at $10 to $25 an acre, according to location.

Norfolk fine sand, loamy phase.—Some areas of the loamy phase of the Norfolk fine sand consist of a gray fine sand to loamy fine sand surface soil, about 8 to 10 inches deep, underlain by a pale-yellow loamy fine sand subsoil, while others consist of a grayish-brown loamy fine sand, 6 to 10 inches deep, underlain by a brownish-yellow loamy fine sand.

This phase is inextensively developed, and occurs mainly in the central part of the county. Small patches scattered through the Norfolk fine sand along both sides of the Ashley River swamps are not shown on the map. The topography of the loamy phase is similar to that of the main type, but it usually occurs in the better drained situations. The phase is slightly more retentive of moisture than the typical soil and crops are not so liable to injury by droughts.

Most of the loamy phase is cleared and cultivated. The same crops are grown as upon the typical Norfolk fine sand, yields being slightly higher. The forest growth is similar to that upon the main type.

NORFOLK FINE SANDY LOAM.

The surface soil of the Norfolk fine sandy loam is a gray fine sandy loam to loamy fine sand, passing at about 2 to 6 inches into a pale-yellow loamy fine sand to light fine sandy loam, which extends to a depth of 12 to 24 inches. The subsoil is a pale-yellow to deep-yellow friable fine sandy clay, frequently becoming slightly compact and containing a few red mottlings in the lower part. Occasional soft brown iron concretions are found on the surface and mixed with the surface soil and subsoil.

In places where the fine sandy material merges into a medium sand extensive areas of the fine sandy loam contain a noticeable quantity of medium sand. In the vicinity of St. George there are other large areas in which the deep subsoil in spots is compact and slightly plastic and contains a few reddish mottlings. A number of areas of Portsmouth silt loam, too small to be separated, are included with this type as mapped.

The Norfolk fine sandy loam is an extensive soil type and occurs in nearly all parts of the county. Its largest developments are in the vicinity of Summerville, Harleyville, and Pregnall. Other com-

paratively large areas occur in the vicinity of Ridgeville and between Polk Swamp and the Edisto River bottoms.

The Norfolk fine sandy loam is considered one of the best soils in the county, and agriculture is probably better developed upon it than upon any of the other types. About 70 per cent of it is cleared and cultivated. The tea farm referred to in the chapter on agriculture is located mainly on this type. The native forest growth consists mainly of longleaf pine, with some white oak, blackjack oak, and liveoak. Uncultivated areas are usually covered with wire grass. Cotton is the most extensively grown crop, occupying an acreage almost equal to that of all other crops combined. Corn stands second, and this grain and cowpeas are probably grown upon a larger acreage than upon any other soil. (See Pl. I.) Sugar cane is grown to some extent. It is planted in patches, usually of less than 1 acre. It yields heavily and makes an excellent grade of sirup.

In cultivating corn both the old method and a modification of the Williamson method are used. The yields range from 20 to 50 bushels per acre, depending upon seasonal conditions, quantity of fertilizer used, and cultural methods. Cotton yields about one-half to 1 bale per acre, according to the quantity of fertilizer used. Oats yield about 20 bushels per acre.

Potatoes, turnips, cabbage, beets, tomatoes, peppers, lettuce, kale, and onions are the principal vegetables grown on this soil. Irish potatoes yield 100 to 150 bushels and sweet potatoes about 150 to 250 bushels per acre. Watermelons and cantaloupes are grown on nearly every farm and in a small way for market.

Tobacco is successfully grown on this type in other parts of South Carolina, and the agricultural experiment station is conducting experiments on it with Carolina bright tobacco.

While more fruit is grown upon this soil than upon any other type in the county, it is not produced on a commercial scale. Peaches and Scuppernong grapes do better than other fruits. Pears, apples, and figs also do well. Pecans are grown to a small extent.

This type is seldom used for pastures. Areas of it which occur in the section where the open range is located are fenced and used for cultivated crops. Very few cattle and hogs are raised exclusively upon this type.

This soil does not require heavy farm implements and usually is not plowed very deep. It can be stirred very soon after a rain without danger of clodding. It is easily improved and maintained in a productive condition. Commercial fertilizers are used more extensively than upon other soils, some form of complete fertilizer being used for almost every crop.

The Norfolk fine sandy loam is valued at $50 to $100 an acre, exclusive of timber rights.

Norfolk fine sandy loam, deep phase.—The deep phase of the Norfolk fine sandy loam represents areas in which the yellow, friable fine sandy clay subsoil is encountered below 24 inches. The surface and subsurface material is a loamy fine sand having a fairly loose and open structure.

The topography of the deep phase is slightly more rolling than that of the remainder of the type, and the soil is slightly more droughty. This phase is suited to the same general crops as the typical soil, but is inherently not quite so productive. It is a stronger soil than the Norfolk fine sand and its productiveness can be easily maintained.

The deep phase occurs on ridges associated with the typical Norfolk fine sandy loam between Polk Swamp and the Edisto River bottoms, and in small, scattered areas in other parts of the county. The forest growth is essentially the same as on the typical areas, with the exception that it includes a large number of scrub oaks. The total area of the phase is only 2.4 square miles.

Norfolk fine sandy loam, flat phase.—The flat phase of the Norfolk fine sandy loam differs from the main type principally in having a less rolling topography. The surface soil material is darker in color and the deep subsoil is faintly mottled with drab and red.

This phase is most extensively developed in the northern part of the county around Twin Run and in the vicinity of Harleyville. Smaller areas are found between Polk Swamp and the bottoms of the Edisto River and in the neighborhood of Cummings Chapel.

Much of the flat phase requires artificial drainage before crops can be successfully grown. It is suited to the same crops and responds to the same cultural methods as the typical soil, but its agricultural value is slightly less, owing to its poor drainage.

The natural forest growth is almost exclusively longleaf pine.

NORFOLK SANDY LOAM.

The surface soil of the Norfolk sandy loam is a gray or yellowish-gray sand or loamy sand, grading at about 6 inches into a pale-yellow loamy sand or light sandy loam, which extends to a depth of 12 to 20 inches. The subsoil is a yellow, friable sandy clay, which in the lower part of the 3-foot section in the better drained areas, shows reddish-yellow mottlings, and where the drainage is not so well established, faint gray, with occasional red mottlings.

The Norfolk sandy loam is extensively developed, occurring mainly in the northern and northwestern parts of the county. The topography is undulating to gently rolling, and natural drainage is generally well established.

The native forest growth consists largely of longleaf pine, with some scattered oak, dogwood, and hickory. The undergrowth is not heavy, the surface being covered principally with wire grass. The land is referred to as "open pine woods."

This is one of the most important types in the county from an agricultural standpoint, and most of it is cleared and under cultivation, being used for general farming. Cotton is the leading crop, covering an acreage equal to that of all other crops combined. Corn is next in importance and is grown on an acreage about one-fourth less than that of cotton. Oats and cowpeas occupy about the same acreage, both relatively small. Sweet potatoes, millet, sorghum, sugar cane, melons, and rye are grown in small patches, usually less than 1 acre. Irish potatoes and other vegetables are grown in gardens. Fruits, including peaches, pears, plums, summer varieties of apples, and grapes, are grown on a small scale for home use. Pecans are grown to a small extent. Very little of the type is pastured or used as an open range.

Carolina bright tobacco is successfully grown upon the type in other sections of the State, and Irish potatoes are produced on a commercial scale as an early truck crop on areas of this type between Savannah, Ga., and Norfolk, Va.

Cotton yields from one-half to 1 bale per acre, depending upon the quantity of fertilizer used and the methods of cultivation. Owing to the better cultural methods and the heavier fertilization practiced, corn yields average a little higher on this type than upon most of the other soils of the county, ranging from about 20 to 50 bushels per acre. Oats yield about 20 bushels per acre. Cowpeas and crab grass cut several tons of hay per acre. Sweet potatoes yield about 150 to 250 bushels per acre, depending on seasonal conditions and the quantity of fertilizer used. Good yields of vegetables are obtained where stable manure and fertilizer are applied.

The use of heavy plows and two-horse teams is more common on this type than on any other in the county. Commercial fertilizer is used in large quantities, 400 to 1,000 pounds per acre of a complete mixture being applied to cotton land and 200 to 400 pounds to corn. Seventy-five to one hundred and fifty pounds of nitrate of soda is used as a top dressing for oats. The soil responds readily to applications of lime and of organic matter in the form of stable manure, leguminous crops or winter cover crops.

Land of this type ranges in value from $25 to $100 an acre, depending upon location and improvement.

Norfolk sandy loam, flat phase.—The flat phase of the Norfolk sandy loam differs from the main type in that the surface is less rolling, being flat to almost level, and drainage is not quite so well estab-

lished. This results in a slightly darker surface soil in the first few inches and in a faint mottling of gray, drab or red in the deep subsoil. The subsoil is less variable in depth below the surface than in the main type, being encountered usually at a depth of about 12 inches.

The flat phase occurs in areas of fair size in the northern and northwestern parts of the county in association with the typical soil.

Open ditches are necessary for the removal of the surplus water before crops can be grown to best advantage on this phase. The same crops are grown as upon the typical soil, and the same general methods are used. The yields, however, are slightly lower. The phase is more in need of lime than the typical soil, being generally sour. Also clods are apt to form in the subsurface soil if plowed immediately after a heavy rain.

The native forest growth is practically the same as on the typical soil.

NORFOLK VERY FINE SANDY LOAM.

The surface soil of the Norfolk very fine sandy loam is a gray very fine sandy loam to a depth of about 10 inches, where it grades into a pale-yellow very fine sandy loam. The subsoil, beginning at about 14 inches, consists of a bright-yellow, friable, compact very fine sandy clay or friable clay, containing a few red mottlings in the lower part. The type is intermediate between the Coxville silt loam, on the one hand, and the Ruston very fine sandy loam, on the other, the Ruston representing a more advanced stage of oxidation.

This type is inextensive and occurs in strips along the border of swamps in the section north of Knightsville. It is also developed southwest of Ridgeville and around Beech Hill.

The native forest growth consists chiefly of longleaf pine and oak, with scattering dogwood and other hardwood trees.

Probably two-thirds of this type is cleared and under cultivation. It is well suited to grasses, and more of it is in sod than of any other Norfolk type. As a rule the pastures are burned over each spring to encourage a new growth of broom sedge. A considerable number of cattle, goats, and hogs range upon the type.

Cotton, corn, oats, and cowpeas are grown in about the same ratio as upon the other Norfolk soils. The soil is slightly stronger than the other Norfolk types, and when properly handled is very productive. Cotton yields range from less than a half bale to one bale, corn from 15 to 40 bushels, and oats from 25 to 35 bushels per acre. The soil is better suited to oats than other Norfolk soils. Sweet and Irish potatoes are grown in home gardens, and when properly handled give good yields. Very little fruit is grown.

Cultivated land of this type usually forms a part of farms composed mainly of Norfolk fine sandy loam, and the cultural methods are practically the same for both types.

The value of this type is relatively high, owing to its location, prices ranging from $35 to $100 an acre.

This soil in other sections of the State has been brought to a very high state of cultivation. It is an excellent general-farming soil, and is well suited to dairying and stock raising. Fruits, including peaches, plums, pears, figs, strawberries, and grapes, thrive. Good yields of an excellent grade of tobacco are also produced. It is also well suited to such legumes as vetch, soy beans, and velvet beans. Irish potatoes are produced on this soil as an early truck crop in other parts of South Carolina.

NORFOLK SAND.

The Norfolk sand consists of a gray, incoherent sand, about 6 to 10 inches deep, underlain by a pale-yellow to yellow incoherent sand, which extends to a depth of 3 feet or more. The texture of both soil and subsoil is medium to coarse.

This type is most extensively developed in the southern part of the county, the largest areas occurring as a ridge bluff along the edges of the Edisto River bottoms, from a point about 5 miles below Givhans Bridge to the Charleston County line.

The surface is undulating to rolling, the type occupying ridges several feet higher than the surrounding soils. Drainage is excessive and crops are liable to injury from drought during dry periods. The soil can be plowed immediately after a rain without injurious results.

The tree growth consists of blackjack and scrub oak, with a scattering of longleaf pine. There is very little underbrush and a sparse growth of wire grass covers the surface.

The Norfolk sand is not very extensively used for agriculture. Cotton, corn, cowpeas, oats, and sweet potatoes are the main crops grown. Cotton and corn occupy the largest acreage, but even these crops are confined to small patches. Most of the type forms a part of the open range, but it affords very poor pasturage, and very few cattle or other live stock subsist upon it.

This type is suited to about the same crops as the Norfolk fine sand, but produces lower yields, owing to its more droughty nature and the poorer cultural methods generally used on it.

The type is not valued very highly, the price ranging from about $5 to $20 an acre.

This type is badly in need of organic matter to increase its productiveness, as well as its water-holding capacity. It also requires heavy applications of fertilizer for best results. Corn would prob-

ably give better results if grown according to the Williamson plan, as it was upon this soil that the method was perfected. Peaches, grapes, melons, and light truck crops are successfully grown upon this soil in other sections of the State.

RUSTON FINE SANDY LOAM.

The surface soil of the Ruston fine sandy loam is a light-gray or grayish-brown loamy sand or light fine sandy loam, grading at about 3 to 8 inches into a pale-yellow, light fine sandy loam, which continues to a depth of 10 to 24 inches. Where typically developed the subsoil consists of a yellowish-red or brownish-yellow friable fine sandy clay, becoming compact in the lower part.

The typical Ruston fine sandy loam is intermediate in character between the Norfolk and Orangeburg soils. It is developed upon well-drained ridges along the bluffs of the larger swamps. Along the smaller swamps, in close association with the Coxville fine sandy loam, areas occur in which the deep subsoil is variable in color and structure, ranging from a red friable fine sandy clay to a mottled yellow and red heavy tough clay. Such areas represent a transition between the Norfolk material on the one hand and the Coxville on the other.

Included with this type, mainly along the bluffs of the tributaries of Cypress Swamp, are areas of Ruston very fine sandy loam which were too small to show on the map. The soil is intermediate between the Ruston fine sandy loam and the Coxville silt loam, and does not differ essentially from the former in agricultural value.

The Ruston fine sandy loam does not occur in large tracts as a rule, but is scattered over the southeastern part of the county. Most of it lies along the tributaries of Cypress Swamp and the Ashley River. Small areas are encountered along the escarpment of Ashley River between the swamp and the terrace, lying much lower than the average of the type but higher than the remainder of the terrace.

The topography is undulating or gently rolling to sloping, and affords ample surface drainage. The impervious nature of the substratum makes this type more retentive of moisture and less subject to leaching than the Norfolk soils. Most of the type having a heavy subsoil lies to the southeast of the Ashley River.

The forest growth consists mainly of longleaf pine, with a scattering of other hardwood trees, such as oak, hickory, dogwood, and sweet gum. A large percentage of the Ruston fine sandy loam is cleared and under cultivation. Cotton is the principal crop grown, and corn comes next. Oats are probably more extensively grown upon this soil than upon any other in the county, but they cover less than half the acreage of corn and probably only a third that of

cotton. Cowpeas, sorghum, sugar cane, potatoes, and vegetables are grown upon a small scale. Summer apples, peaches, pears, plums, figs, and grapes are grown in small home orchards.

Cotton yields three-fourths to one bale per acre. Corn, when grown under a modification of the Williamson method, yields about 25 to 45 bushels per acre. When grown upon the old plan, without fertilizer, the yields are much lower, probably not exceeding 20 bushels per acre. Oats ordinarily yield about 30 bushels per acre in favorable seasons. Cowpeas and crab grass make heavy yields of hay. No other legumes are grown, except experimentally.

Fertilizers are used with most crops upon nearly all the farms. The usual applications are: For cotton, 400 to 800 pounds per acre of an 8–3–3 mixture; for corn, 250 to 350 pounds; and for oats, 200 to 400 pounds. Seventy-five to one hundred and fifty pounds per acre of nitrate of soda is also used with oats as a top dressing. Lime has been used by some of the farmers with good results. The soil as a rule is not sour, but when cover crops are turned under liming is considered advantageous.

The price of this soil ranges from about $20 to $100 an acre, according to location.

In handling this soil care is necessary not to plow when it is too wet, as the subsurface soil puddles and gives considerable trouble. The type is deficient in organic matter.

RUSTON SANDY LOAM.

The surface soil of the Ruston sandy loam consists of a gray to brownish-gray loamy sand which passes at about 6 or 8 inches into a yellowish, friable sandy loam, extending to a depth of 12 to 18 inches. The subsoil is a yellowish-red or reddish-yellow, friable sandy clay, becoming slightly compact in the lower part. The substratum is often mottled with red.

This type is developed principally in small areas scattered over the northern part of the county to the northeast of Saint George and north of Harleyville. A few small areas also occur in the vicinity of Club House Crossroads, in the southern part of the county. The surface is undulating to rolling and natural drainage is good. The natural forest growth consists of longleaf pine, oak, hickory, and dogwood. Most of the type is cleared and cultivated.

Cotton is grown much more extensively than any other crop. Corn, oats, and cowpeas follow in the order named. Sweet potatoes, sorghum, and sugar cane are grown in small patches. Peaches, pears, plums, grapes, and summer apples are grown in small home orchards and give fair yields. Practically all the vegetables grown in this section of the State are found in gardens upon this type.

Cotton yields three-fourths to 1 bale per acre when heavily fertilized. Most of the farmers use fertilizer upon this crop in applications ranging from 300 to 800 pounds per acre. Corn yields about 20 to 40 bushels per acre. It is grown under a modification of the Williamson plan, about 200 to 400 pounds of complete fertilizer and 100 pounds of nitrate of soda being applied. In some cases very little fertilizer is used, compost or manure being depended upon.

Oats are planted with a drill or sown broadcast. They yield ordinarily about 25 to 35 bushels per acre with the use of small quantities of fertilizer high in phosphate and a heavy top dressing of nitrate of soda in the spring. Cowpeas and crab grass make heavy yields of hay. The methods of handling this soil are practically the same as those practiced on the fine sandy loams and the other well-drained and aerated upland soils.

Very few cattle and hogs are kept upon this soil. That part of the type located within the open range is fenced and under cultivation.

The price of land of this type varies considerably. The areas in the northern part of the county are very desirable for farming, while those in the southern part are less desirable, owing to their remoteness from shipping points.

RUSTON LOAMY SAND.

The Ruston loamy sand consists of a gray or brownish-gray loamy sand about 8 to 10 inches deep, underlain by a yellowish-brown to reddish-yellow loamy sand, which extends to a depth of 3 feet or more. Both soil and subsoil are fairly loose and open in structure.

This type occurs as a narrow strip along the bluffs of the Edisto River bottoms from the Orangeburg County line to Cattle Creek and in fairly well developed areas on both sides of Indian Field Swamp, near the Indian Field Camp Meeting Ground. The topography is rolling and drainage is well established.

Most of this type is cleared and under cultivation, and, although the total area is small, it is a fairly important soil.

Cotton, corn, oats, rye, cowpeas, sweet potatoes, and vegetables are the principal crops grown. Cotton and corn are much more extensively grown than any other crops. The yields are slightly smaller than on the Ruston sandy loam and larger than on the Norfolk sand. In favorable seasons, and with heavy fertilization, cotton yields one-half to one bale per acre. When not fertilized the yield is about one-fourth to one-third bale per acre. Corn does well when grown according to the Williamson plan, but the yields are low when the old methods are followed unless an unusually large quantity of organic matter is added to the soil, either in the form of manure or of a

leguminous crop, such as cowpeas, turned under. Sweet potatoes ordinarily yield about 200 bushels per acre. This soil is not very well suited to grasses, and no stock is kept upon it.

The same general methods of farming are followed on this soil as on the Ruston sandy loam. This soil is well suited to legumes, such as cowpeas, velvet beans, soy beans, and vetch, and to melons and light truck crops. It is in need of more organic matter to increase its moisture-holding capacity and productiveness.

COXVILLE FINE SANDY LOAM.

The surface soil of the Coxville fine sandy loam as typically developed is a dark-gray to black, light fine sandy loam in the first few inches, grading into a gray or light-gray, light fine sandy loam, which passes at about 6 inches into a yellowish-gray to yellow fine sandy loam. The subsoil is encountered at a depth of 8 to 12 inches and consists of a mottled gray and yellow, heavy, sticky fine sandy clay, which becomes heavier with depth and shows bright-red mottlings at 20 to 24 inches. One marked characteristic of this type, as well as of the other Coxville soils, is the nearness of the subsoil to the surface. This type as mapped includes areas of Coxville very fine sandy loam too small to be shown separately.

The Coxville fine sandy loam is developed mainly in scattered areas south of Four Hole Swamp, in the southeastern section of the county. Other important areas are encountered near Pregnall and southwest of this place. The type occupies flats having a level to gently undulating topography, and natural drainage is poor.

The native forest growth consists largely of longleaf pine. This soil is not very extensively used for crop production, much of it being in forest and open savannas. These savannas are burned off each season and the new grass, mainly broom sedge, furnishes good grazing for the stock that runs upon the open range. Cattle constitute the greater part of the stock raised upon the range. Most of the cattle are driven to Charleston for sale.

Cotton is the leading crop. Corn comes next, but is grown to a smaller extent than on most of the upland types. Oats stand third in point of acreage. Cotton yields about one-fourth to one-half bale per acre, small quantities of fertilizer being used. Corn does not succeed under the Williamson plan, and when grown according to the old methods it does not make very large yields, as the cultural methods used are better suited to lighter soils. Oats do a little better than upon some of the lighter soils. Cowpeas and crab grass are grown to a small extent for hay.

Owing to its low position, very few homes are located upon this type. The type requires artificial drainage before it can be profitably farmed. Lime is also beneficial. When drained and limed it is

suited to the same crops as the well-drained phase. Around Chadbourne, N. C., and Conway, S. C., strawberries are successfully grown on a commercial scale on this type.

The price of land of the Coxville fine sandy loam ranges from $5 to $25 an acre.

Coxville fine sandy loam, well-drained phase.—The surface soil of the Coxville fine sandy loam, well-drained phase, consists of a gray, light fine sandy loam, about 6 to 8 inches deep, grading into a yellow, friable fine sandy loam which extends to a depth of 12 to 15 inches. The subsoil is a mottled gray, yellow, and red fine sandy clay, stiff and plastic in structure.

This phase occurs in areas scattered through the main type. A few small areas are also encountered in the southern part of the county along the Charleston County line. The surface is level to gently rolling, and drainage is generally good.

The forest growth on this phase consists largely of longleaf pine, with but little undergrowth. Most of the well-drained phase is cleared and under cultivation. Cotton is the leading crop, covering an acreage almost equal to that of all the other crops combined. Corn comes next to cotton in importance. Oats and cowpeas are grown to a small extent. Nearly all the vegetables common to this section are grown in home gardens. Potatoes are grown only in small patches. There are a few small home orchards containing peach, pear, and plum trees.

Very little of this phase is part of the open range, hence only a few cattle, hogs, and goats are grazed upon it.

Yields on the well-drained phase are slightly higher than upon the main type. Cotton yields one-half to 1 bale per acre, the yields depending upon the quantity of fertilizer used. Corn, when fertilized, yields from 30 to 40 bushels, and when not fertilized, about 15 to 20 bushels, per acre. Oats yield from 25 to 35 bushels per acre with the use of nitrate of soda as a top dressing. Little complete fertilizer is used for oats.

Much of this phase, as well as of the main type, is farmed by tenants and the equipment is not of the best.

The well-drained phase is valued more highly than the typical soil, being sold at $20 to $40 an acre.

If this soil is plowed when too wet the closeness of the subsoil to the surface causes puddling, which results in decreased yields. The addition of lime and of organic matter in the form of compost, stable manure, or green manure is necessary to improve the structure of the soil and increase its productiveness. Strawberries are well suited to this phase, having been grown successfully on the same character of soil in other parts of the State. Sweet potatoes have a tendency to make

a stocky growth and are better suited for market than the "shoestring" potato produced upon the lighter soils. Such vegetables as cabbage, beans, turnips, tomatoes, and beets have proved successful upon this soil in other counties of South Carolina and in adjoining States.

COXVILLE SANDY LOAM, WELL-DRAINED PHASE.

The surface soil of the Coxville sandy loam, well-drained phase, consists of a gray to dark-gray sandy loam from 6 to 8 inches deep. Underlying this is a pale-yellow, heavy sandy loam which extends to a depth of about 12 to 18 inches. The subsoil is a heavy, plastic but rather compact sandy clay, mottled with gray, yellow, and red. In many places the red mottling is encountered only below 24 inches.

This soil is developed most extensively between Indian Field and Polk Swamps, near St. George. Important areas are found west of Harleyville, north of Timothy Swamp, and in the southern section of the county, especially around Club House Crossroads.

The surface is undulating to gently rolling and the natural surface drainage is fairly good, although the impervious character of the subsoil in places makes internal drainage rather slow. There are a few small patches which have a flat surface and poor surface drainage. These spots represent the Coxville sandy loam as typically developed in other sections of the State, differing from the well-drained phase in having a darker surface soil and brighter red mottlings in the subsoil.

A large proportion of the Coxville sandy loam, well-drained phase, has been cleared and is used for crop production. Forested areas support a growth of longleaf pine, with some white oak, dogwood, and other hardwoods. This phase is located in one of the best developed farming sections of the county. Cotton, corn, and oats are the leading crops, the yields being slightly higher than upon the well-drained phase of the fine sandy loam. About the same quantities of fertilizer are used upon this soil as upon the associated types. Owing to their poorly drained condition, the flat areas are not used at present for agriculture, except for the summer grazing of cattle.

The Coxville sandy loam, well-drained phase, is valued more highly than any of the other Coxville soils. Prices range from $20 to $50 an acre.

This soil is greatly improved by the incorporation of organic matter in the form of barnyard manure or green manuring crops and by liming. It is necessary to plow this soil when the moisture conditions are favorable, as clodding results if it is plowed when too wet.

COXVILLE SILT LOAM.

The surface soil of the Coxville silt loam is a dark-gray to black silt loam, passing at about 4 to 6 inches into a light-gray silt loam which extends to a depth of 8 to 12 inches. The subsoil is a mottled gray and yellow plastic silty clay, containing bright-red mottlings below 20 inches.

This type is developed in the section of the county south of Four Hole Swamp. Large areas are found around Jedburg, Ridgeville, and between Beech Hill and Cummings Chapel. It occurs in flat to almost level areas, locally referred to as pine savannas, and is poorly drained. In places there is a scattered growth of longleaf pine, while wide stretches occur on which there are no trees. (See Pl. II.) The entire surface is covered with grass, which is burned off during the winter to promote a new growth. This furnishes good grazing during the summer season. Most of this type is within the open range, and a considerable number of cattle, hogs, and goats graze upon it. None of this type is used for cultivated crops.

This soil must be thoroughly drained, heavily limed, and supplied with organic matter before crops can be successfully produced upon it. It is best suited to wheat, oats, corn, and grass.

PORTSMOUTH FINE SAND.

The surface soil of the Portsmouth fine sand is a black loamy fine sand ranging in depth from 6 to 12 inches. The subsoil consists of a gray fine sand, which is usually saturated with water and in many places possesses the characteristics of quicksand. The loamy character of the surface soil is due to a high content of organic matter.

This soil is not extensively developed, occurring in small depressions or flats scattered over that part of the county where the fine-textured soils are developed. Drainage is poorly established. The forest growth consists of loblolly pine, with an undergrowth of gallberry and bay laurel.

This type is not used for the production of crops. It is doubtful if it could be profitably drained and cultivated. Some of it is fenced and used for pastures in its uncleared state.

Land of this type has a very low value, probably not exceeding $5 an acre.

PORTSMOUTH SANDY LOAM.

The surface soil of the Portsmouth sandy loam is a black sandy loam ranging in depth from 6 to 12 inches. The subsoil to a depth of 3 feet or more is a heavy, sticky sandy clay, steel gray in color and mottled with yellow and brown. Lying between the soil and subsoil there is in places a layer of gray, heavy, sticky sandy loam.

This soil occupies uniformly flat to level areas having poor natural surface drainage. In the northern and northwestern parts of the county it occurs as irregular depressions in areas of the Norfolk soils. These depressions have a scattered growth of pine, sweet gum, and oak, with an undergrowth of gallberry and bay bushes. In the southern part of the county it occupies extensive level areas, which support a forest growth of longleaf pine, with patches of gallberry and bay bushes. Where there is no tree growth the surface covering consists of wire grass. Low places in the type have a growth of cypress, very often with little or no undergrowth. Water stands upon the lower depressions during long periods.

This type is not used for cultivated crops. In the northern part of the county it is fenced in some places and used for pasture in its natural state. In the southern part of the county it forms a part of the open range, and a few cattle, hogs, and goats find subsistence upon the grass and underbrush.

When properly drained this soil is capable of producing good yields of cotton, corn, oats, sorghum, and hay, and such truck crops as cabbage, beans, strawberries, tomatoes, lettuce, onions, and beets. It is probably not so well suited to legumes as other better drained soils. Lime is needed to correct the acidity. If the soil is plowed in a wet condition clodding results.

PORTSMOUTH SILT LOAM.

The surface soil of the Portsmouth silt loam to a depth of 8 to 10 inches consists of a black, mellow silt loam carrying a relatively high percentage of very fine sand. This grades into a gray or mottled gray, yellow, and brown, sticky, heavy silt loam, which is underlain within a few inches by a mottled gray and yellow, plastic silty clay.

Most of this type lies in the section between Summerville and Four Hole Swamp, occurring in depressions or at stream heads in areas of the Coxville silt loam. In some places it occurs as small "bays" scattered over the Norfolk fine sand and Coxville fine sandy loam. The surface is flat and the type is very poorly drained. The tree growth consists largely of cypress, with an undergrowth of bay bushes.

This type is not generally used for agriculture. In many places, however, it is fenced and used as pasture for hogs, cattle, and goats. A part of it lies in the open range.

A small area of this type is located upon the experiment station farm and has been under cultivation for about 5 years. The land has been thoroughly drained with a system of tile drains and treated with an application of about 2,000 pounds of marl per acre. This process, by using up the stored organic matter, has changed the color of the

surface soil to dark gray and caused the yellow mottlings to predominate in the subsoil and the brown mottlings to change to yellowish brown. While the subsoil here is still somewhat compact and plastic, it is less sticky than in the natural state. On this field heavy yields of corn, oats, and cowpea and crabgrass hay have been obtained. Cotton, German millet, sorghum, and soy beans have been successfully grown with the use of fertilizer. Oats are probably better suited to the soil than any other crop. The station authorities consider 40 to 50 bushels of oats per acre a low average for this soil, and 70 bushels per acre is the average for one field. The methods used by the experiment station upon this soil should be studied carefully by those desiring to develop areas of this soil.[1]

Cotton following corn and cowpeas or rye turned under yields about 1 bale per acre with the use of 500 pounds per acre of 16 per cent phosphoric acid, 400 pounds cottonseed meal, and 75 pounds muriate of potash. Corn succeeds best when grown under the ordinary methods. A yield of 50 bushels per acre has been obtained by using about 850 pounds of an 8–4–4 mixture and 100 pounds of nitrate of soda, the crop following rye turned under. With the use of 250 pounds of 8–4–4 fertilizer mixed with the soil and 300 pounds of 8–4–4 as a top dressing, following a crop of corn and cowpeas, a yield of 50 bushels per acre of oats has been obtained. Irish potatoes, onions, beans, cantaloupes, okra, peas, lettuce, cucumbers, carrots, watermelons, turnips, corn, cabbage, and tomatoes have been found to do well with an application of 400 pounds per acre of complete fertilizer.

PORTSMOUTH FINE SANDY LOAM.

The Portsmouth fine sandy loam as typically developed has a black, light fine sandy loam surface soil, ranging in depth from 6 to 10 inches. The subsoil is a mottled gray, yellow or brown, heavy, sticky fine sandy clay, often compact and plastic in the lower part. There is often encountered between the surface soil and subsoil a subsurface layer, several inches thick, consisting of a light-gray, sticky fine sandy loam.

Four variations of this type occur, which differ principally in topography, occurrence, and timber growth. One of these consists of saucerlike depressions or small "bays" in the Norfolk fine sandy loam, where the Portsmouth type has a uniformly black surface soil to a depth of 10 inches and very little yellow mottling in the subsoil. The forest growth upon these bays consists almost entirely of cypress or black gum, with a fringe of gallberry bushes and bay laurel. The center of the areas is usually without undergrowth

[1] See Bul. 167, S. C. Expt. Sta.

and is covered with standing water during most of the year. These areas are scattered through all parts of the county where the Norfolk fine sandy loam occurs.

Another variation is developed north of Four Hole Swamp in long, narrow, irregular stream-head depressions or broad depressions in which streams start, where the black surface soil is shallow and the yellow color in the subsoil is pronounced. The growth on these areas is mainly pine, with a scattering of sweet gum and black gum and an undergrowth of gallberry and bay bushes.

A third variation, which occurs in the southeastern part of the county, consists of long, narrow strips that slope to the border of the swamps, occupying the same position as the typical Plummer soils, but having a Portsmouth surface soil and subsoil. Spots of Plummer soil are encountered here, having a dark-gray surface soil and a gray subsoil, as well as spots of a Coxville type having red mottlings in the subsoil. The forest growth is longleaf pine and sweet gum, with an abundant undergrowth of gallberry bushes, broom sedge, and pitcher plants.

Large areas are developed to the north of Summerville that have characteristic Portsmouth fine sandy loam surface soils, but very much lighter fine sandy loam subsoils than is typical. The surface is level to almost flat and drainage is poor. The forest growth is longleaf pine. Much of the surface is covered with grass.

The Portsmouth fine sandy loam is scattered over the sections where the fine soils are developed. It is closely associated with the Norfolk fine sandy loam, but occupies a position 5 to 10 feet lower.

Very little of the type is under cultivation. Where cultivated it is usually sown to oats, which yield 20 to 40 bushels per acre with the use of about 200 to 250 pounds of 8–0–2 fertilizer in the fall before planting and 100 pounds of nitrate of soda as a top dressing in the spring. The soil is usually not thoroughly enough drained for successfully growing other crops than oats. Some of the type forms part of the open range and small areas located outside of the open range are in pasture. In its natural condition it makes excellent pasture land for hogs.

The price of this land ranges from $10 to $50 an acre, depending upon the location and improvements.

If thoroughly drained and limed this soil would produce good yields of most of the crops grown in the county. It is best suited to such crops as oats, corn, sorghum, cabbage, onions, cucumbers, lettuce, and strawberries. In wet seasons, even with a good drainage system, the soil holds too much water for crops that require well-aerated soils.

HYDE CLAY LOAM.

The surface soil of the Hyde clay loam to a depth of 10 or 12 inches is a black clay loam, passing imperceptibly into a black, heavy clay loam to clay subsoil, which extends to a depth of 3 feet or more. In places the deep subsoil is bluish black or steel gray in color. Both surface soil and subsoil are sticky and plastic, but not very compact, and contain a high percentage of organic matter, much of which is well decomposed.

This type occurs in broad, low flats in the extreme southern part of the county, adjacent to and occupying a slightly higher level than the Tidal marsh. The topography is level and drainage is poorly established, water standing upon the surface for long periods.

This soil was extensively used at one time for the culture of rice, and was recognized as one of the best rice soils in the country. Since the growing of rice has been abandoned the fields have grown up in cypress. There are large areas, called open savannas, which probably never supported a forest growth, and are covered with grass and reeds. The grass resembles St. Augustine grass, and is known locally as "savanna grass." It affords good grazing for a considerable number of cattle during certain seasons when the ground becomes sufficiently dry to support their weight.

The value of this land at one time was over $100 an acre, but it could probably be obtained at the present time for $5 to $10 an acre.

If thoroughly drained and limed this soil would produce large yields of corn, oats, onions, cabbage, and lettuce. The heavy expense which its reclamation would require would seem to be warranted by the quality of the soil.

BLADEN CLAY LOAM.

The surface soil of the Bladen clay loam is a dark-gray to dull-brown clay loam, somewhat plastic and compact in structure, the color grading within a few inches into steel gray mottled with drab and brown, which continues to a depth of 8 or 12 inches. In the lower places and near some of the old rice-field dikes the soil is black to a depth of 1 foot or more. The subsoil is a mottled drab, yellow, and brown, heavy, plastic, tenacious clay, becoming more compact with depth.

This type is extensively developed over the southern part of the county. It occurs upon the old tidal flats and is associated with the Coxville soils.

The topography is level, and drainage is poorly established. Large areas are said to contain beds of phosphate at depths ranging from a few inches to several feet, and in places the type has been dug over to a shallow depth for phosphate.

The greater part of the Bladen clay loam was cultivated to rice at one time. Most of the dams and dikes that were used in the rice fields are broken in places, and the canals and ditches are partly filled. A few small patches of rice are cultivated at the present time, but the yield is low, owing to the difficulty of controlling the water supply. No other cultivated crops are grown.

A heavy tree growth, consisting mainly of cypress, covers much of the type at the present time. In places black gum is the principal growth. Over considerable areas no tree growth occurs. Such areas are known locally as "savannas"; they are covered usually to a depth of a few inches with water, and support a heavy growth of savanna grass.

The type forms a part of the open range and supports a large number of cattle, a few hogs, and some horses. The cattle are sold for the Charleston market.

With more thorough drainage and heavy applications of lime good yields of corn, oats, onions, cabbage, lettuce, and celery could be obtained.

At present this land, which at one time sold for $100 to $150 an acre, can be bought for $10 an acre.

Bladen clay loam, better drained phase.—The better drained phase of the Bladen clay loam lies slightly higher than the typical soil and has somewhat better drainage. The soil is a dark-gray to gray, mottled with brown, clay loam, somewhat plastic and slightly compact. The subsoil is a mottled gray, yellow, and brown, heavy plastic, compact clay, containing a few faint red mottlings in the lower part.

This phase occurs as low "islands" scattered over the typical Bladen clay loam. The topography is level to gently sloping.

The phase supports a heavy forest growth of hardwoods, consisting of white and water oak, longleaf and black pine, beech, and myrtle. It is doubtful whether it was ever used very extensively for rice, owing to the difficulty of obtaining sufficient water, and there is no evidence of any other crop having been grown.

Exclusive of timber, land of this phase is valued at about $5 an acre.

If this soil were cleared, drained, heavily limed, and supplied with organic matter, it would produce fair yields of corn, oats, and wheat. Clearing would be more expensive than for the ordinary upland.

KALMIA FINE SANDY LOAM.

The surface soil of the Kalmia fine sandy loam is a gray, light fine sandy loam, passing at about 2 to 6 inches into a pale-yellow, somewhat heavier fine sandy loam. The subsoil proper begins at 12 to 24 inches and consists of a yellow, friable fine sandy clay, frequently

showing mottlings of light gray in the lower part. The type includes spots of sandy loam.

This type occurs upon the better drained terraces or nonoverflow bottoms of the larger streams of the county. Extensive areas are encountered along Cypress Swamp. Upon the terraces of the Edisto River areas mapped as this type are found that have prevailingly a medium texture.

The topography of the type in general is undulating to gently rolling. Drainage is fairly well established. The forest growth consists of longleaf pine, with a scattering of oak, sycamore, beech, and sweet gum.

Probably two-thirds of the type is cleared and under cultivation. In general about the same crops are grown as upon the Norfolk soils of the same texture. There are very few farmsteads located upon this soil.

Practically the same cultural methods are followed upon the Kalmia fine sandy loam as upon the Norfolk soils. It responds to the same methods of improvement as the Norfolk fine sandy loam, from which it differs principally in physiographic occurrence.

KALMIA SAND.

The Kalmia sand consists of a gray sand, 5 to 12 inches deep, underlain by a pale-yellow medium sand, which extends to a depth of 3 feet or more. The structure of both soil and subsoil is fairly loose and open.

This type is developed along the terraces or second bottoms of the Edisto River, and lies above normal overflow. Often it occurs in ridges running parallel to the stream. The topography is undulating to gently rolling. Drainage is excessive, and if it were not for the nearness of the water level crops would suffer from lack of moisture during dry seasons.

Probably little over half of this type is cleared and cultivated. Yields are uniformly better than on the Norfolk sand. Cotton is the principal crop, covering about two-thirds of the cultivated area. Corn is next in importance. Oats, rye, sweet potatoes, cowpeas, and melons are grown upon small patches.

This soil responds to the same methods of improvement as the Norfolk sand and the Kalmia coarse sand.

KALMIA COARSE SAND.

Areas in Kalmia sand color marked by symbols represent the Kalmia coarse sand or the St. Lucie sand.

The soil of the Kalmia coarse sand is a gray, loose, coarse sand, about 6 to 12 inches deep, and the subsoil is a pale-yellow, coarse, incoherent

sand. This type occurs in many small areas scattered over the terraces of the Edisto River from the Orangeburg County line to a point about 5 miles below Givhans Bridge. It occupies ridges, higher than the remainder of the terraces, running in the general direction of the stream.

The Kalmia coarse sand is suited to about the same crops and responds to the same treatment as the Kalmia sand. It is best suited to rye, vetch, cowpeas, velvet beans, melons, and light truck crops, although the staple crops, cotton, oats, and corn, can be grown with a fair degree of success. The soil is not strong, and large quantities of commercial fertilizer are necessary for the successful production of crops. It is inclined to be droughty, but not so much so as the same class of soil situated upon the upland.

Most of this type is cleared and under cultivation. It is held at a higher price than the bottom land in general. It stands above possible overflow, and can be used with safety for residence sites. The forest growth consists of pine, scrub oak, and sweet gum, with a scattering of the other trees found upon the terraces.

ST. LUCIE SAND.

The St. Lucie sand, also shown by symbol in Kalmia sand color, is a white, loose, incoherent sand, 3 feet or more in depth. In a few places the color of the surface few inches is gray. The entire deposit is composed of pure quart grains of medium texture.

This type is developed in scattered areas along the Edisto River bottoms, being most extensive north of Leveston Bluff. It occurs as ridges lying 20 to 30 feet higher than the surrounding bottoms and standing above overflow. These ridges vary in width from a few hundred feet to half a mile and are sometimes several miles long, running parallel with the general direction of the river. The topography is rolling and the drainage is excessive.

The St. Lucie sand supports a sparse growth of scrubby live oak and scattered longleaf pine. The type is not used for agriculture and is of little value.

MYATT SAND.

The surface soil of the Myatt sand is a dark-gray to almost black sand, about 8 to 12 inches deep, containing a large quantity of organic matter. The subsoil is a light-gray sand, rather loose and open in structure, and more or less water-logged below a depth of 20 inches.

Most of this type occurs in the southern part of the county, being developed in the Edisto River swamps.

The topography in general is level, but slight swells occur which are somewhat better drained than the remainder of the type, and consequently have a lighter colored surface soil. Poor drainage conditions exist over most of the type.

The natural forest growth consists of longleaf pine with gallberry upon the swells and bay bushes in the more swampy areas. Practically no crops are grown. The land in general is covered with grass. Large areas are burned over each spring to improve the pasturage.

The agricultural value of this land is low, the price ranging from $5 to $10 an acre.

Artificial drainage is installed with difficulty upon this type as on account of its "quicksand" nature the subsoil material has a tendency to fill the ditches. Pasturage is the best use to which this soil can be put.

MYATT SANDY LOAM.

As mapped in this county the Myatt sandy loam varies considerably. Where typically developed it has a surface soil of gray to dark-gray sandy loam, 8 to 12 inches deep, and a subsoil of light-gray, sticky sandy clay, containing yellow or brown mottlings, and becoming heavier and plastic with increase in depth. The surface few inches is often black in the lower places. Between the soil and subsoil there is often a layer of light-gray or whitish sandy loam, several inches thick. The typical areas are low and flat, usually lying between the Kalmia soils and the upland, and have very poor surface drainage.

Between Grover and the Edisto River large areas are encountered that lie slightly higher than the typical soil and are somewhat better drained. The surface soil of such areas is a gray, medium to fine sand, underlain at depths ranging between a few inches and 24 inches by a stratum of heavy, plastic, compact clay loam to clay. This in turn is underlain, to a depth of 3 feet or more, by a gray, light sandy loam subsoil, sometimes mottled with yellow or brown and impervious to water.

Large areas of this type are in pasture, and very little of it is cleared and cultivated. The forest growth consists largely of longleaf pine, with some sweet gum and a scattering of other trees common to the terraces.

Oats and corn are about the only crops produced upon this soil, and these are grown only to a very small extent. Only fair yields are obtained, as little attention has been given to drainage. The native grass furnishes good grazing during the summer season. Grass remains green upon these low soils during dry seasons.

For its improvement this soil requires artificial drainage and heavy applications of lime. The lower lying areas need lime to cor-

rect acidity and the better drained areas need this constituent to improve the physical condition of the soil and to loosen up the hard, impervious stratum between the surface soil and subsoil.

MYATT FINE SANDY LOAM.

The Myatt fine sandy loam where typically developed has a dark-gray, light fine sandy loam surface soil, which passes at about 8 to 12 inches into a gray, mottled with yellow and brown, fine sandy clay subsoil, sticky and compact in structure. Areas of several hundred acres are encountered where the subsoil is mottled with red, resembling the Coxville subsoil, and which would be mapped as Leaf fine sandy loam if their occurrence were more extensive. This variation of the type is most prominently developed in scattered areas along Cypress Swamp and Ashley River between the Southern Railway and Slands Bridge. Other areas are scattered over the type.

The Myatt fine sandy loam is developed upon the low terraces of Four Hole Swamp, Cypress Swamp, and Ashley River and their larger tributaries. The surface is uniformly flat to almost level and the surface drainage is poorly established.

The type is used to a very small extent for agriculture. Most of it is located upon the open range and cattle and hogs find subsistence upon the heavy undergrowth, which consists of saw palmetto, myrtle, bay bushes, gallberry, and brambles. Of the cultivated crops, corn probably covers the largest acreage. Oats and cotton are grown upon a very small acreage. The yields obtained are only fair.

If properly drained and heavily limed, good yields of all the crops grown in this section could be obtained on this soil. Such crops as corn, oats, sorghum, cabbage, and onions are apt to succeed better than crops that require a well-aerated soil.

LEAF SILT LOAM.

Areas in Myatt fine sandy loam color distinguished by inclusion symbol represent the Leaf silt loam. The surface soil is a dark-gray silt loam, about 6 inches deep, which grades into a subsurface layer of light-gray heavy silt loam, mottled faintly with brown and yellow. The subsoil proper is encountered at about 10 or 12 inches and consists of a mottled gray, drab, yellow, and red silty clay loam, plastic, tenacious, and compact in structure. This type is encountered upon the low terraces of Cypress Swamp and Ashley River. The largest areas are found east of Givhans.

The topography is level and the surface drainage is very poor. The compact nature of the subsoil prevents the downward movement of water, which stands for some time upon the surface unless removed by artificial drainage.

The forest growth consists of hardwoods, such as oak, beech, and sweet gum, with a few scattered pines. The cleared areas are in grass and are used for pasture. The uncleared areas form a part of the open range, and cattle and hogs forage upon the grass and underbrush.

This soil is not used for agriculture. If drained and limed, it would be suited to the same general range of crops and would require the same methods of handling as the Coxville silt loam.

OKENEE LOAM.

The surface soil of the Okenee loam is a black, mucky loam, about 6 to 10 inches deep, and the subsoil is a black silt loam in the upper part, the color changing gradually to dark gray at a depth of about 24 to 30 inches. The subsoil is plastic and sticky and becomes more compact and heavier as depth increases, approaching a silty clay loam near the bottom of the 3-foot section.

This type occurs upon the terraces of the Edisto River, occupying a position between the higher terraces and the hill land. The areas are broad, flat, and very poorly drained. One strip extends from the point where Cattle Creek meets the Edisto River terraces to a point below Grover.

The native forest growth is similar to that upon the first bottom or overflow land, cypress, black gum, and sweet gum being the principal trees. A fairly heavy undergrowth of brambles occurs in places. There is little or no grass on the land.

This soil is naturally strong, but is not used for agriculture, owing to its poorly drained condition. In other sections of South Carolina where this soil has been drained it produces good yields of corn, oats, and sorghum with the use of fertilizer. When drained and limed it is suited to such truck crops as onions, celery, tomatoes, and cabbage.

JOHNSTON SAND.

The surface soil of the Johnston sand is a dark-gray to black sand, containing varying quantities of organic matter and ranging in depth from 6 to 12 inches. The subsoil is a gray to light-gray loose sand and is usually water-logged.

The Johnston sand occurs along the Edisto River. The type is subject to frequent inundations and water stands upon it during long periods. It contains numerous sloughs. There are many low ridges or small "islands" on which the soil resembles the St. Lucie sand, but which are subject to occasional overflows.

The tree growth upon the lower part of the bottoms next the river is usually cypress, while upon the swales and low ground next the upland it is usually black gum. The remainder of the bottoms sup-

ports a scattered growth of other trees common to the bottom land of this section. A fairly dense growth of underbrush is found.

No crops are grown on this type. It forms a part of the open range and a few cattle and hogs find subsistence upon the shrubs. It is a soil of low agriculture value, ranging in price from $1 to $5 an acre, exclusive of timber.

JOHNSTON CLAY LOAM.

The Johnston clay loam consists of a dark-gray to black plastic clay loam about 8 to 15 inches deep, underlain by a heavy, plastic steel-gray clay, mottled with drab, brown, and yellow. The brown mottlings are usually small and in places there is only a trace of yellow.

This soil is typically developed on the bottoms of the Ashley River, between Schuts Lake and the mouth of Eagle Creek, where it merges into Tidal marsh. It occurs as first-bottom land, subject to frequent overflows. Water stands for long periods upon most of the type. The surface is fairly level, with the exception of sloughs and low places next to the hills.

Parts of the type were used at one time for rice culture. When the dikes were broken the growing of rice was abandoned, and the fields grew up in forest. At the present time none of the type is farmed, and a considerable outlay of money would be required to dike and drain the land so that crops could be successfully grown. If reclaimed this land would probably produce good yields of corn, oats, onions, cabbage, and celery.

The forest growth includes cypress, black gum, sweet gum, beech, birch, elm, pine, sycamore, and ironwood, with no one species predominating. Grapevines, briers, and small palms constitute the undergrowth. Owing to the denseness of the tree growth, the type supports very little grass.

This type is used as an open range for cattle, which subsist largely upon the leaves of shrubs. The land values, exclusive of timber, range from about $5 to $10 an acre.

JOHNSTON LOAM.

The Johnston loam varies considerably in texture, being derived from material of different textures, deposited by currents of differing velocities. Most of the surface material is black, containing a high percentage of organic matter. The subsoil is usually a gray, sticky sandy clay in which the sand varies in texture from fine to coarse. In places the subsoil is sandy throughout the entire 3-foot profile, but such areas are small. Upon a large number of bottoms in the northern part of the county the material is predominantly a fine sandy loam, interspersed with strips of loam. In the southern part of the county the tendency is toward a clay loam, but parts of the bottoms, as a result of local

influences, consist of fine sandy loam or loam. In some places, noticeably along the streams in the western part of the county, areas of sandy loam predominate.

This type occurs upon the overflow land along all the streams in the county, except the Edisto River.

Very little of this soil is used for agriculture. A few small patches of corn and rice are grown, rice yielding about 15 to 20 bushels and corn about 20 bushels per acre. Some of the type is in the open range and parts of it are fenced and used as pasture for cattle and hogs.

The forest growth consists chiefly of cypress and black gum, with a scattering of sweet gum, birch, and willow. The undergrowth is usually heavy, consisting of bay bush, bay laurel, brambles, and green briers. The price of the land, exclusive of the timber, is low.

This soil, if drained, would produce good yields of corn and grass, although crops would always be liable to injury from overflows. Any system of drainage, to be effective, would necessarily have to be extensive, including a canal for draining the entire swamp, and many lateral ditches.

TIDAL MARSH.

Tidal marsh, shown on the map by marsh symbol, occurs upon the low flats along the tidal streams. At high tide these flats are covered to a depth of a few inches by brackish water, while at low tide they are exposed. The soil consists of a gray or dark-drab clay loam, passing at a depth of about 12 inches into a blue, sticky clay loam or clay. Neither the soil nor subsoil is very compact, both having the consistency of mud. Both soil and subsoil contain a large quantity of partially decayed vegetable matter.

Tidal marsh is encountered along the Ashley River from the mouth of Eagle Creek to the Charleston County line, and extending along Rantowles Creek to a point about 1 mile above Bradleys Bridge. These marshes attain a maximum width of about 1 mile.

The surface is flat and is dissected by small drainage ways at intervals of a few hundred yards. The vegetation consists mainly of marsh grass, with small patches of reed grass in places. Both of these grasses have a very low feeding value and the flats are too boggy to permit of grazing animals upon them.

It is doubtful whether the Tidal marsh area could be profitably reclaimed and used for agriculture.

SUMMARY.

Dorchester County is located in the southeastern part of South Carolina. Physiographically it lies in the Lower Pine Belt of the Atlantic Coastal Plain. It has an area of 566 square miles, or 362,240

acres. The surface is level to gently rolling, the upland having a general elevation of 50 to 150 feet above sea level. The northern half of the county is higher and, in general, better drained than the southern part, where there are extensive areas of flat savannas and low-lying, poorly drained land. The bottom lands along the streams are wide and the streams sluggish.

The early settlements were made by the English during the last quarter of the seventeenth century. The present population consists largely of descendants of the original settlers. The population of the county in 1910 was 17,891. Summerville, with a population of 2,355, and St. George, with 957, are the largest and most important towns. The county is well supplied with transportation facilities. Lumber, phosphate, cotton, cattle, and a small quantity of truck crops are the principal exports. Charleston is the main market.

The climate is mild in winter and warm in summer. The growing season is long and the precipitation is ample for crops. The snowfall amounts to only a trace.

Rice was introduced at an early period and soon became the most important crop, but was superseded about 1880 by cotton. At the present time general farming is carried on, with cotton as the leading money crop. Corn, oats, and cowpeas are the other important field crops, and sweet potatoes, Irish potatoes, sorghum, sugar cane, and vegetables are the principal subsistence crops. No systematic rotation is in general use. Commercial fertilizers are used in large quantities. A large number of cattle, hogs, and goats are kept upon the open range, but only a small number are raised in other parts of the county. Improved farm machinery is used to a very small extent. Most of the farm laborers are negroes. The South Carolina Coast Experiment Station is located in this county.

The soils of Dorchester County are divided into three classes: (1) Upland or sedimentary soils, consisting of unconsolidated Coastal Plain sands and clays, derived originally from the Piedmont Plateau and the Appalachian Mountains; (2) terrace or second-bottom soils lying above overflow, consisting of old alluvial material derived from the Coastal Plain soils; and (3) first-bottom or overflow soils, comprising the present flood plains of the streams, and composed of stream-deposited material derived from the upland and terrace soils. Exclusive of Tidal marsh, 29 soil types are mapped in the county, one represented only by a phase.

The Norfolk and Ruston series comprise well-drained upland soils. The surface soils of the Norfolk series are gray and the subsoil is yellow. The Norfolk fine sand is extensively developed and is used to a large extent for the production of crops. The loamy phase of this type is a slightly better agricultural soil than the main type.

The Norfolk fine sandy loam is extensive in area, and a large part of it is under cultivation. It is the best general-farming soil in the county. The deep phase of this type is more droughty and not quite so strong as the typical soil. The flat phase has about the same crop value as the main type.

The Norfolk sand is droughty and is little used for agriculture.

The Norfolk sandy loam is a good soil, and a large area of it is devoted to general farming. The flat phase of this type almost equals the typical soil in crop production, but is not so extensively used, as artificial drainage is required for the best results.

The Norfolk very fine sandy loam has a small area. It is used for general farm crops and as grazing land.

The Ruston types have grayish surface soils and reddish-yellow to dull-red subsoils. The Ruston fine sandy loam is one of the best soils in the county, and a large part of it is used for general farming, most of the remainder being in second-growth forest.

The Ruston sandy loam is not quite so extensively developed as the fine sandy loam, but produces similar yields.

The Ruston loamy sand is not quite so strong as the sandy loam and requires more fertilizer.

The Coxville types have dark-gray surface soils and mottled-gray, yellow, and red plastic subsoils. They are level to undulating and are usually poorly drained.

Areas of Coxville fine sandy loam are scattered over the southern two-thirds of the county. The soil is in need of better drainage and of liming. The well-drained phase is a better agricultural soil than the main type, and most of it is used for cultivated crops.

The Coxville silt loam is developed upon large flat savannas and supports a scattered growth of longleaf pine, with a surface covering of grass. Most of this type is used for grazing land, and none of it is cultivated. It requires artificial drainage, liming, and the incorporation of organic matter before it can be profitably used for the production of crops.

The Coxville sandy loam, well-drained phase, occurs in large areas. It is fairly well drained and is used to a large extent for general farming. The yields are fair.

The Portsmouth series comprises types having black surface soils and gray or mottled gray, drab, and yellow subsoils, which are sticky and plastic in the heavier members. The surface is usually level and drainage is poor.

The Portsmouth fine sand has a small area, is a poor soil, and is not used for the production of crops.

When well drained the Portsmouth sandy loam is capable of producing good yields of cotton, corn, oats, sorghum, hay, and other crops. At present it is not used for cultivated crops.

The Portsmouth silt loam is not generally used for agriculture, but when properly drained, limed, and fertilized good yields of the crops commonly grown are produced.

The Portsmouth fine sandy loam is more widely distributed than the other Portsmouth types. It is used for agriculture only to a very small extent, but if drained would be well suited to the crops grown in this section.

The Bladen clay loam covers large areas in the southern part of the county. It was extensively used at one time for rice culture, but is little used for agriculture at the present time. The better drained phase would produce fair yields of corn, oats, and wheat if cleared of the forest growth, drained, heavily limed, and supplied with organic matter.

The Hyde clay loam is characterized by its black color throughout the entire 3-foot soil profile. This type formerly produced heavy yields of rice, but is not used for agriculture at present.

The Kalmia series includes types having gray to grayish-yellow surface soils and yellow, friable subsoils. They occur on stream terraces.

The Kalmia fine sandy loam is more widely distributed than the other types of the series. It is used for general farming.

The Kalmia sand is confined to the Edisto River terraces. It occurs in relatively small areas. About half the type is farmed.

The Myatt soils are developed upon the low, poorly drained terraces of the larger streams. The surface soils are dark gray and the subsoils gray or mottled gray, brown, and yellow.

The Myatt fine sandy loam is used to a very small extent for agriculture. It would produce fair crops if properly drained.

The Myatt sand occurs in small areas and on account of the poor drainage conditions and the loose character of the subsoil is not used for crop production.

The Myatt sandy loam occurs in extensive areas upon the Edisto River terraces. It is little used for farming. If properly drained, it would produce fair crops.

The Okenee loam is black in color throughout the 3-foot section, and contains a high percentage of organic matter. It is poorly drained and none of it is used for agriculture.

The Johnston soils have black surface soils and gray subsoils. They occur as first-bottom overflow land, and are in a swampy condition during most of the year. Three types, the Johnston clay loam, sand, and loam, are mapped.

Tidal marsh represents the areas covered by brackish or salt water at flood tide.

○

[PUBLIC RESOLUTION—No. 9.]

JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following:

"That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: *Provided*, That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture."

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils.]

NRCS Accessibility Statement

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

U. S. DEPT. OF AGRICULTURE
BUREAU OF SOILS
MILTON WHITNEY, CHIEF
CURTIS F. MARBUT, IN CHARGE SOIL SURVEY

SOIL MAP

SOUTH CAROLINA
DORCHESTER COUNTY SHEET

LEGEND

- Norfolk sand — N
- Norfolk fine sand — Nf
- Loamy phase — Nf
- Norfolk sandy loam — Ns
- Flat phase — Ns
- Norfolk fine sandy loam — Nl
- Deep phase — Nl
- Flat phase — Nl
- Norfolk very fine sandy loam — Nv
- Ruston loamy sand — Rs
- Ruston sandy loam — Rl
- Ruston fine sandy loam — Rf
- Coxville sandy loam Well-drained phase — C
- Coxville fine sandy loam — Cs
- Well drained phase — Cs
- Coxville silt loam — Cl
- Portsmouth fine sand — Pf
- Portsmouth sandy loam — Pl
- Portsmouth fine sandy loam — Po
- Portsmouth silt loam — Ps
- Bladen clay loam — B
- Better drained phase — B
- Kalmia sand — Ks
- Kalmia fine sandy loam — K
- Myatt sand — Ms
- Myatt sandy loam — Ml
- Myatt fine sandy loam — M
- Johnston sand — Js
- Johnston loam — Jl
- Johnston clay loam — Jc
- Hyde clay loam — H
- Okenee loam — Ol

Inclusion Symbols
(text description in report follows description of soil in which symbol is placed.)

- Leaf silt loam Kalmia coarse sand
- St. Lucie sand

CONVENTIONAL SIGNS

CULTURE
(printed in black)

- City or Village, Roads, Buildings, Wharves, Jetties, Breakwater, Levee, Lighthouse, Fort.
- Secondary roads and Trails
- Railroads Steam and Electric
- Bridges, Ferry
- R. R. crossings, Tunnel
- Ford, Dam
- School or Church Cemeteries
- Mine or Quarry Mines & Quarry Made (abn)
- Bluff, Escarpment, Rock outcrop and Triangulation station
- Stony and Gravelly areas
- Soil boundaries
- State Boundary lines
- County Boundary lines
- Township Boundary lines
- U. S. township and section lines

RELIEF
(printed in brown or black)

- Contours, Depression contours
- Prominent Hills Mountain Peaks
- Sand, Wash, and Sand dunes
- Shore and Low-water line, Sandbar

DRAINAGE
(printed in blue)

- Streams
- Lakes, Ponds Intermittent lakes
- Intermittent streams
- Springs, Canals and Ditches, Flumes
- Swamp Salt marshes
- Submerged Marsh Tidal Flats

The above signs are in current use on the soil maps. Variations from this usage appear in some maps of earlier date.

W. Edward Hearn, Inspector Southern Division.
Soils surveyed by W. J. Latimer, in charge, J. M. Snyder, and Cornelius Van Duyne.

Scale 1 inch = 1 mile

Field Operations Bureau of Soils 1915